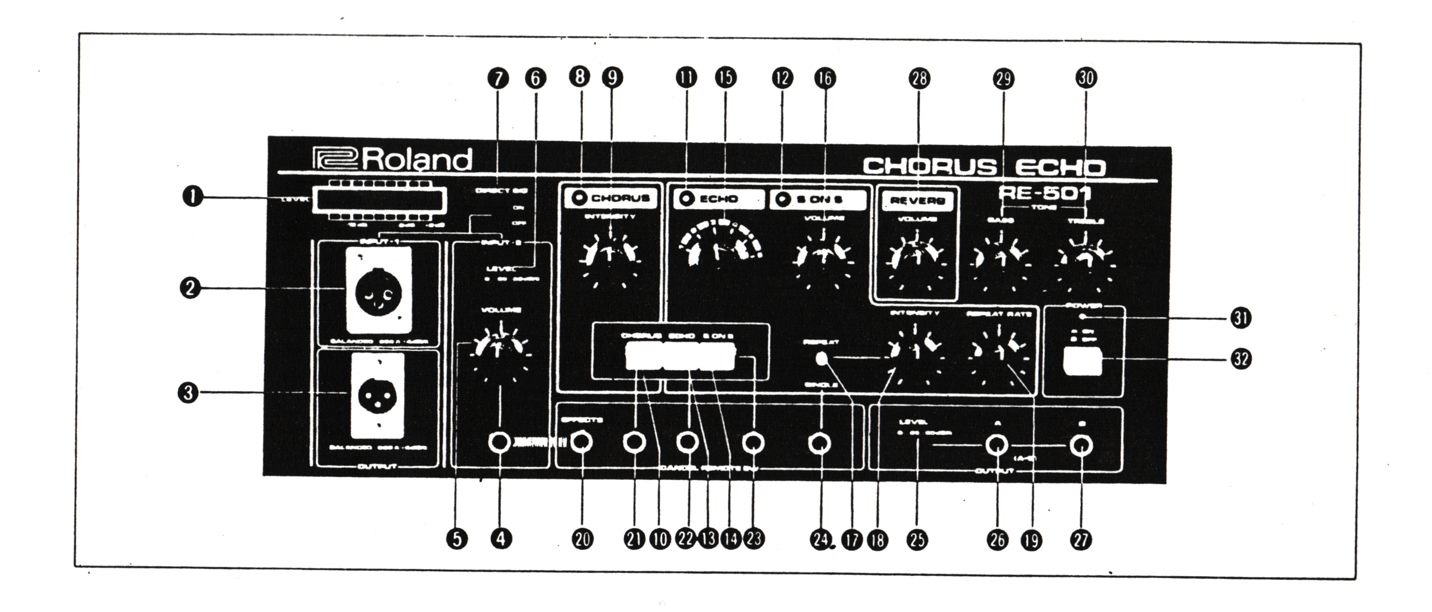






# RE-501
## CHORUS ECHO

Bezeichnungen und Funktion der Bedienungselemente




1. LED Aussteuerungsanzeige

   Regeln Sie den Eingang so, daß die LED-Kette 0 dB anzeigt und die Spitzen bei max + 2 dB liegen.

2. Symmetrischer Eingang (XLR - 600 Ohm)

   Der "Volume"-Regler hat keinen Einfluß auf diesen Eingang.

   Bei einem + 4-dBm-Eingang zeigt die LED-Kette 0 dB.

3. Symmetrischer Ausgang (XLR - 600 Ohm)

   Wenn die LED-Kette 0 dB anzeigt, besitzt das Ausgangssignal + 4 dB.

   Auf diesem Ausgang liegen alle Effekte des RE-501 zusammengefaßt (A + B).

4. Unsymmetrischer Eingang (Klinke)

   Direkteingang für Mikrofon, Gitarre oder Keyboards

5. "VOLUME"

   Lautstärkekontrolle für den unsymmetrischen Eingang

6. Eingangsanpassungsschalter für Klinkeneingang

   | | | | |
   |---|---|---|---|
   | Mikrofon | - 50 dBm | Gitarre | - 25 dBm |
   | Synthesizer | 0 dBm | Mixer | 0 oder - 25 dBm |

7. Schalter Direktsignal ein/aus

   Wenn Sie das RE-501 in ein Mischpult einschleifen, schalten Sie das Direktsignal aus (off). Bei Betrieb zwischen Instrument und Verstärker schalten Sie das Direktsignal ein (on).

8. CHORUS LED

   Die LED leuchtet, wenn der Choruseffekt eingeschaltet ist.

9. CHORUS-Tiefe-Kontrolle

   Mit diesem Regler bestimmen Sie die Stärke des Choruseffektes.

10. CHORUS-Ein/Aus-Schalter

11. ECHO LED

    Die LED leuchtet, wenn Echo eingeschaltet ist.

12. S ON S LED

    Die LED leuchtet, wenn der "Sound on Sound"-Effekt eingeschaltet ist.

13. ECHO-Ein/Aus-Schalter

14. "S ON S"-Ein/Aus-Schalter

15. Echoarten-Wiedergabekopfkombinationen

| | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Tonkopf 1 | X | | | X | | X |
| " 2 | | X | | X | X | X |
| " 3 | | | X | | X | X |

16. "ECHO"- und "S ON S"-Lautstärke

Der "Volume"-Regler bestimmt die Lautstärke von Echo und "S on S", hat aber keinen Einfluß auf das Direktsignal.

17. Schalter Einfachwiederholung (SINGLE/REPEAT)

Mit diesem Schalter sperren Sie die Rückführung auf den Aufspielkopf. Das bedeutet, jeder Wiedergabekopf gibt nur einmal ein Einfachecho ab. Je nach Echoart können Sie so 1fach-, 2fach- oder 3fach-Wiederholungen erzielen. Der Schalter wirkt auch auf den "S on S"-Effekt.

18. INTENSITY (Wiederholungshäufigkeit)

Der Regler bestimmt die Rückführung auf den Eingang (Feedback). Je mehr er im Uhrzeigersinn gedreht wird, umso mehr Echowiederholungen finden statt (wirkt nur, wenn der Schalter "single/repeat"auf "repeat" steht). Beachten Sie, daß sich bei zu starkem Feedback das Signal selber aufschaukelt und das zu einer Zerstörung der Elektronik führen kann.

19. REPEAT RATE - Wiederholungsgeschwindigkeit

Der Regler kontrolliert die Geschwindigkeit des Bandes und damit die Zeit zwischen den Echo- bzw. "S on S"-Wiederholungen.

20. - 24. Fußschalteranschlüsse

Über diese Anschlüsse können mit Hilfe der Fußschalter FS-1, FS-2 oder FS-3 alle Funktionen des RE-501 ferngesteuert werden.

25. Ausgangsanpassungsschalter (für die Klinkenausgänge)

Gitarrenverstärker - 25 dBm
Gesangsverstärker - 50 dBm
Mischpult 0 oder - 25 dBm

26. Ausgang A

Wenn Ausgang B nicht genutzt wird, so liegen alle Effekte auf diesem Anschluß (A + B).

27. Ausgang B

    In Verbindung mit einem Anschluß an A entsteht eine stereophone Zuordnung der Effekte.

28. Hall-Lautstärke

    Allen Effekten kann mit dem Regler "Reverb Volume" ein Halleffekt zugemischt werden.

29. Klangkontrolle Bass (beeinflußt Effektsignale)

30. Klangkontrolle Höhen (beeinflußt Effektsignale)

31. NETZ LED

    leuchtet, wenn das Gerät eingeschaltet ist.

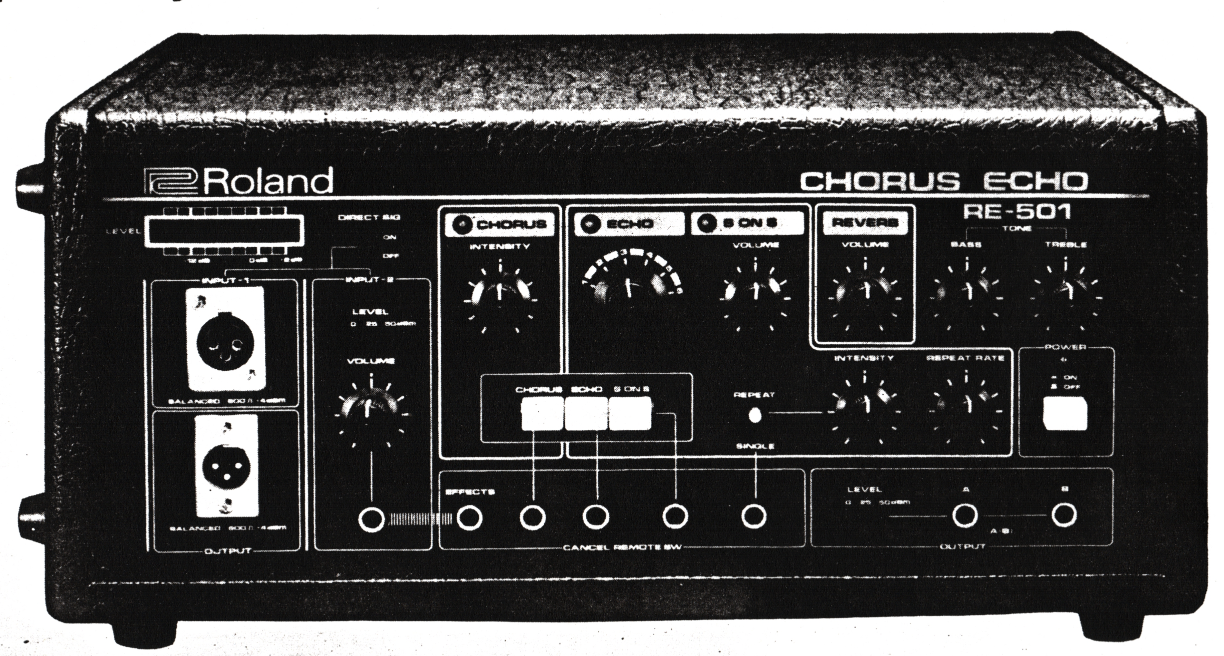
32. Netzschalter

Eingänge und Ausgänge

Die Ein- und Ausgänge (symmetrisch und unsymmetrisch) können in beliebiger Kombination genutzt werden.

Der symmetrische und unsymmetrische Eingang wird intern gemischt, so daß sie parallel genutzt werden können.

Auch die symmetrischen und unsymmetrischen Ausgänge können parallel genutzt werden.



# RE-501, SRE-555 SERVICE NOTES

## SPECIFICATIONS

**Input Level/Impedance**

| | |
|---|---|
| Balanced: | +4dBm/30kΩ |
| Unbalanced: | 0dBm/47kΩ |
| | −25dBm/220kΩ |
| | −50dBm/6.6kΩ |

**Output Level/Impedance**

| | |
|---|---|
| Balanced: | +4dBm/600Ω |
| Unbalanced: | 0dBm/More than 5kΩ |
| | −25dBm/More than 5kΩ |
| | −50dBm/More than 5kΩ |

**Switch**
Input-2-Level Switch (0, −25, −50dBm)
Output A-B Level Switch (0, −25, −50dBm)

SRE-555

| | |
|---|---|
| **Power Consumption:** | 24W |
| **Dimension:** | 480(W)×180(H)×450~735(D)mm |
| **Weight:** | 15.8kg |

**RE-501**

| | |
|---|---|
| Power Consumption: | 24W |
| Dimensions: | 418(W)×190(H)×330(D)mm |
| Weight: | 10.5Kg |

CABINET DISASSEMBLY: Remove screws - two decorations on both sides; eight 4 x 25mm truss ( 6 bottom, 2 sides).

Washer no.42 (121-042)
Decoration screw no.15 (123-015)

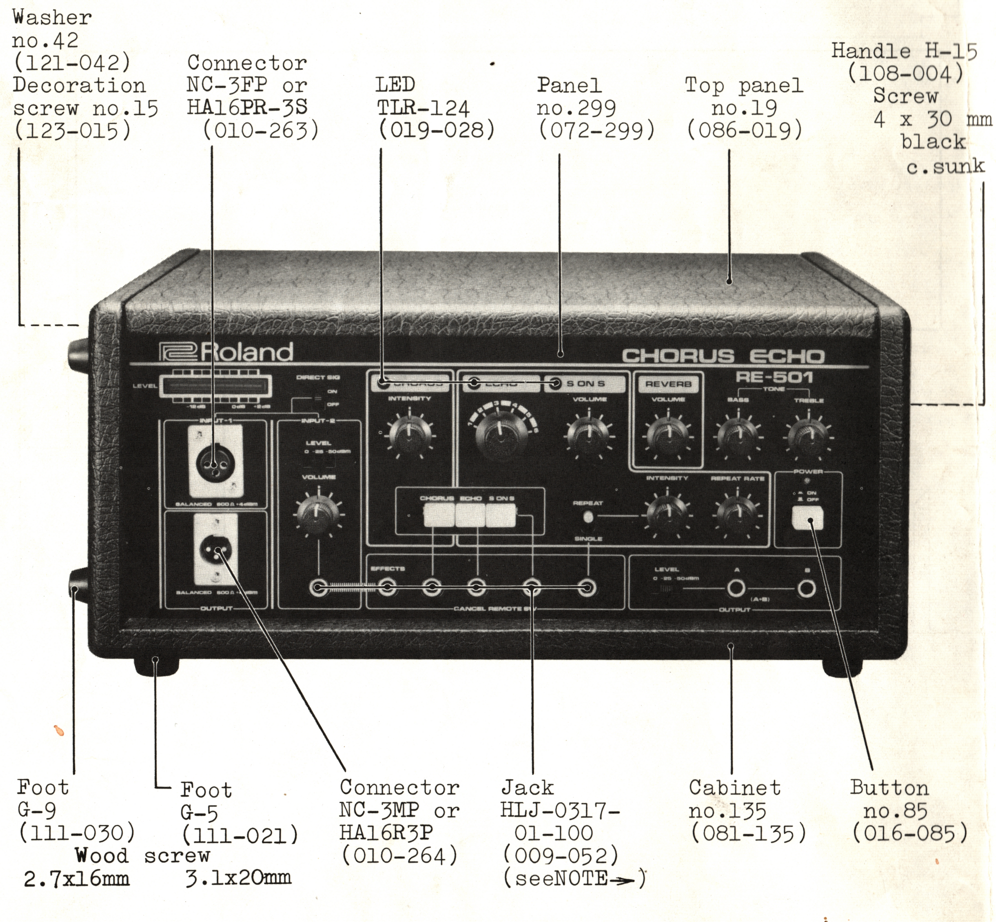
Connector NC-3FP or HA16PR-3S (010-263)

LED TLR-124 (019-028)

Panel no.299 (072-299)

Top panel no.19 (086-019)

Handle H-15 (108-004)
Screw 4 x 30 mm black c.sunk




Foot G-9 (111-030)
Wood screw 2.7x16mm

Foot G-5 (111-021)
3.1x20mm

Connector NC-3MP or HA16R3P (010-264)

Jack HLJ-0317-01-100 (009-052) (seeNOTE→)

Cabinet no.135 (081-135)

Button no.85 (016-085)



Switch SRJ-1016 (001-305)
Knob no.103 (016-103)

Pot. EWKENAP25B15 (027-016)

Pot. EVH6PAP25B15 (026-460)

Pot. EVH6PAP25 B14 (026-457)

Switch
ESB-70226 (13129113) 100V
ESB-70271T (13129114) 117V
ESB-70293S (13129115) 220/240V
Button no.9 black (016-009)

Switch SSB-02242 (001-182)

LED BAR DISPLAY TLR-401 (019-033)

SRE-555 cont'd verte (back side)

Switch SSB-04303 (001-304)

Switch SUF-032A19 (001-306)
Button no.85 (016-085)

Jack HLJ-0307-01-040 or HLJ-1307-01-040 (countersunk opening) (009-053)

Pot. EVH6PAP25B14 (026-457)

Pot. EVH6PAP25A24 (026-447)

Panel cover no.289 (065-289)

(RE-501)

Spacer no.24 (073-024)

Chassis no.302-2 (061-302-2)

Chassis no.302-1 (065-302-1)

Switch SSB-02303(001-205)

Pot. EVH6PAP25B14 (026-457)
Knob no.78 (016-078)

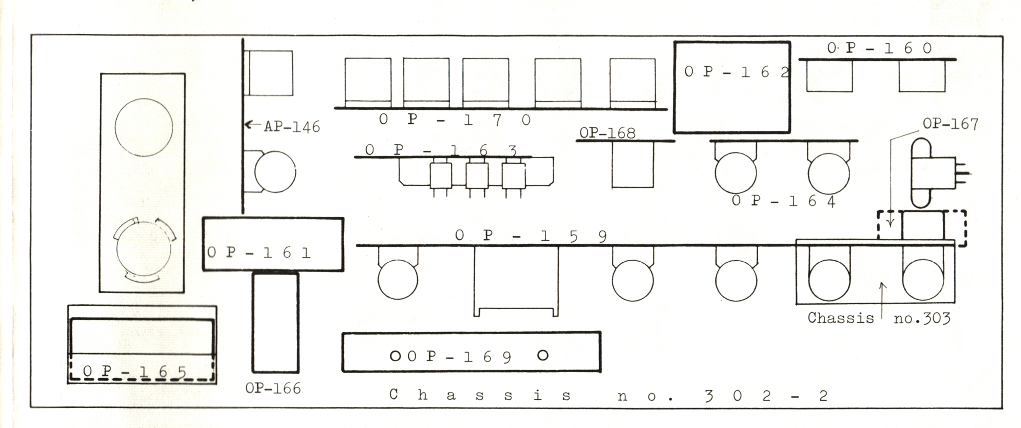
Switch SLR-02239 (001-266)

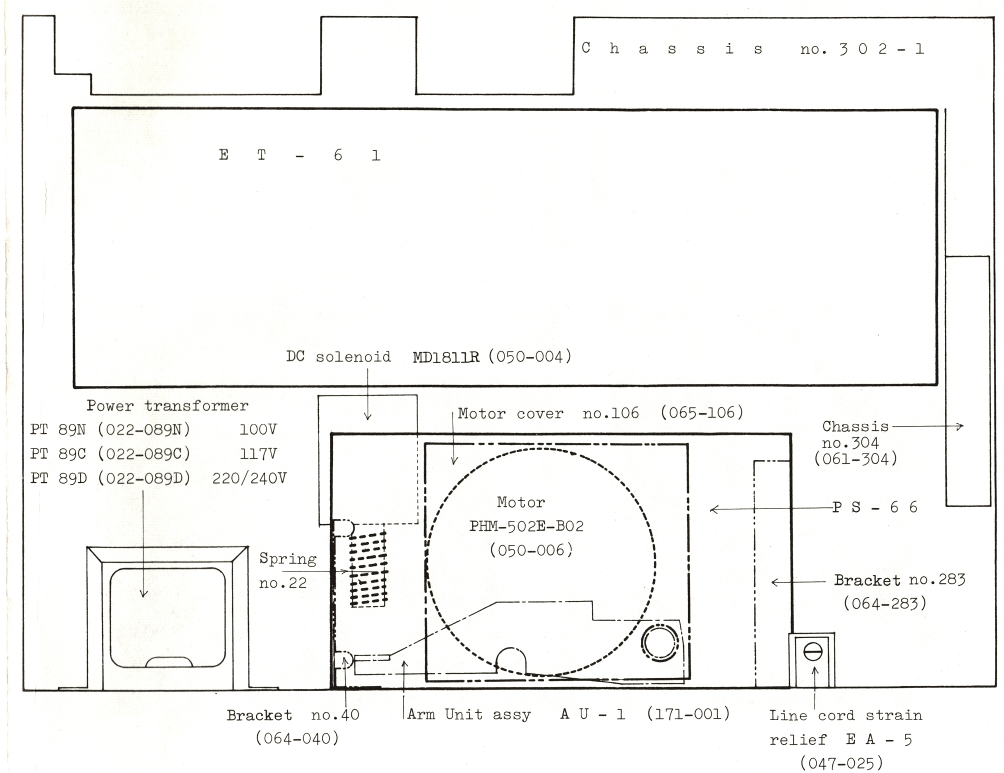
**«NOTE»**: Jacks on later products HLJ-1317-01-100 countersunk.

## SRE-555 PARTS BREAK DOWN

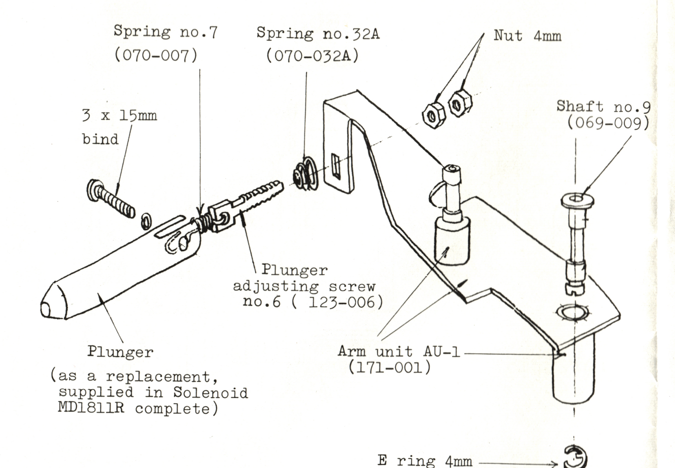
Handle no.22 (108-022)
Cover no.296 (065-296)
Knurled nut 3mm no.36 (120-036)
5 x 12mm countersunk
Cover no.292 (065-292)
Chassis no.302-2 (061-302-2)
Cover no.293 no.294 (065-294) (065-293)
R. Hand L.Hand
4 x 8 mm C1 bind
Panel no.311 (072-311)
Roller (12170703)
Washer 6 x 13 x 1mm
Hexagon socket head bolt 6 x 12mm Fe BC
E washer
4 x 8mm bind C1 BC
Felt no.32 (101-032)
Decoration screw no.16 (123-016)
Guide no.34 (067-034) R.H.
(( Guide no.33 (067-033) ))L.H
Nut 4mm Fe Cm, Washer 4 x 10 x 0.8mm
Cover no.291 (065-291)
Reverb unit Z-3F (040-001)
Holder no.289 (064-289)
Guide no.35 (067-035)
4 x 18mm bind Fe BC
Leaf spring no.62 (070-062)
Leaf spring no.62 (070-062)
Guide no.36 (067-036)
Case no.54 (066-054)
3 x 6mm C1 BC
Roller (12170703)
4 x 8mm bind, C1, BC
3 x 12 mm Fe,Cr
Washer 6 x 13 x 1mm
Rubber foot G-7 (111-023)

## RE-501, SRE-555 CHASSIS-ASSEMBLY ILLUSTRATION



## ARM UNIT



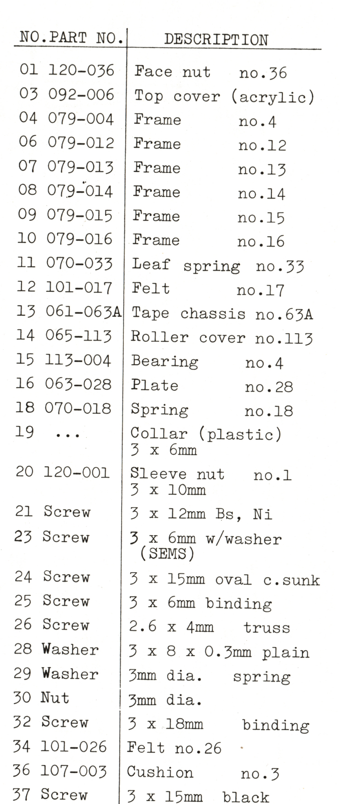

NOTE:

The following list indicates the parts compatible but have different finishes.
Of these, used mainly for RE501/SRE555 are chrome ones.

| Name | Finish black | Finish chrome |
|---|---|---|
| Frame | no.13 | no.7 |
| Frame | no.14 | no.8 |
| Frame | no.15 | no.9 |
| Frame | no.16 | no.10 |
| Plate | no.28 | no.11 |

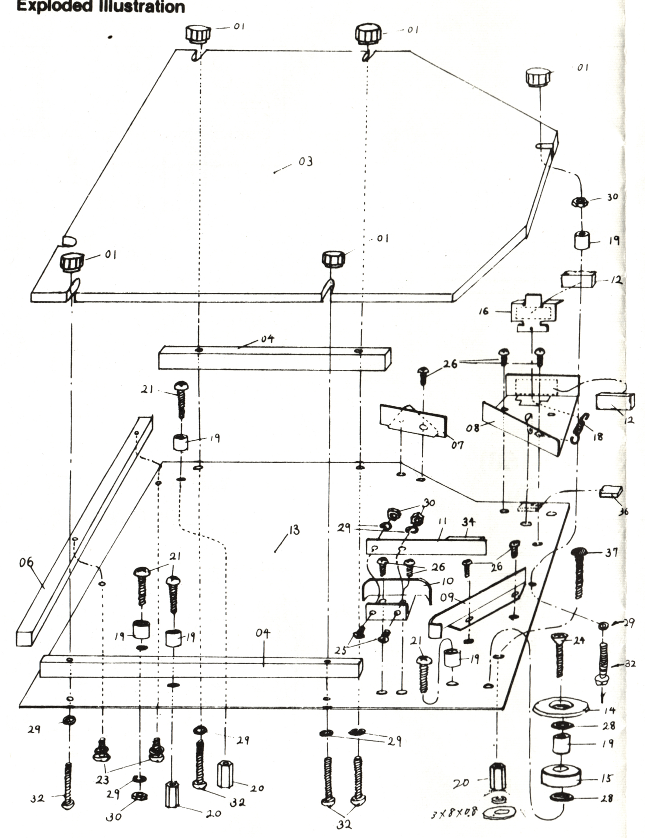
## TAPE PACK

### Build Up Parts List

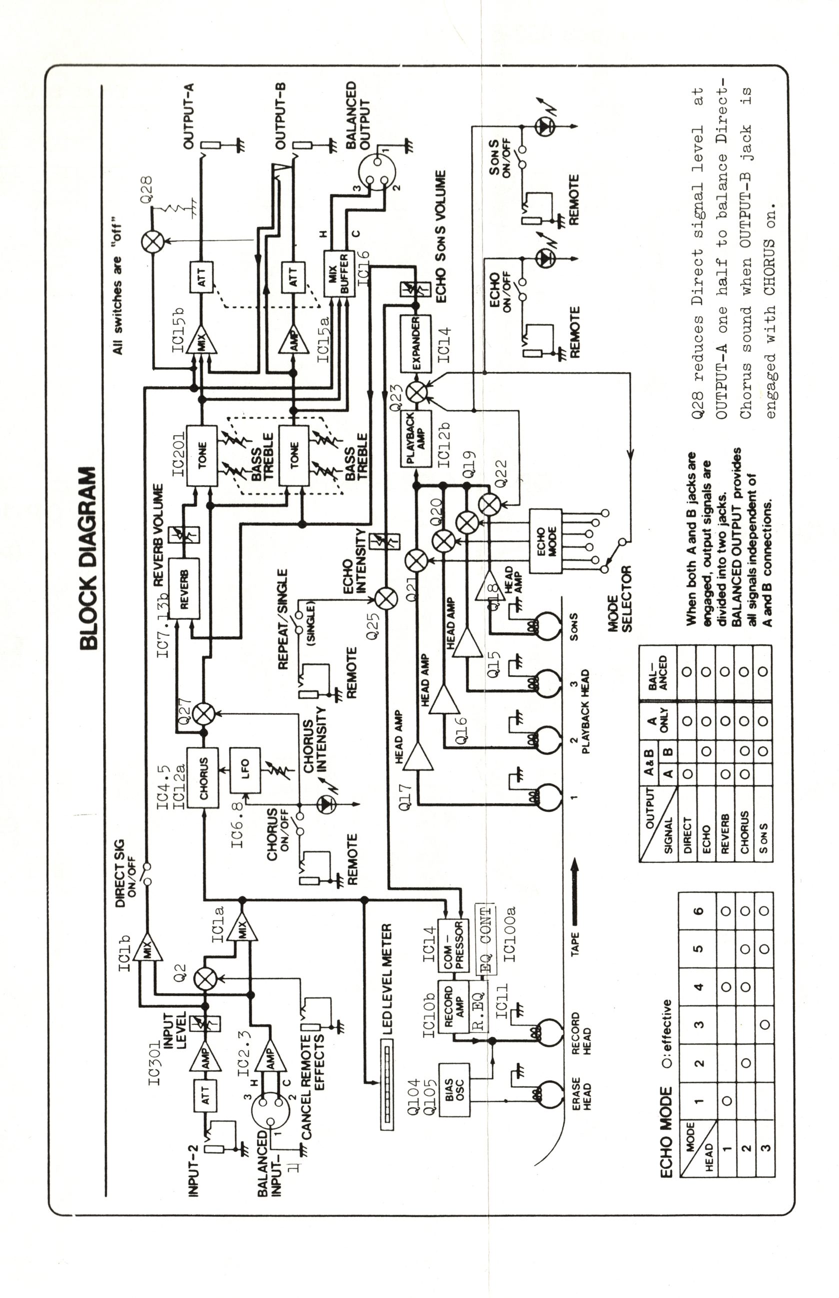


| NO. | PART NO. | DESCRIPTION |
|---|---|---|
| 01 | 120-036 | Face nut no.36 |
| 03 | 092-006 | Top cover (acrylic) |
| 04 | 079-004 | Frame no.4 |
| 06 | 079-012 | Frame no.12 |
| 07 | 079-013 | Frame no.13 |
| 08 | 079-014 | Frame no.14 |
| 09 | 079-015 | Frame no.15 |
| 10 | 079-016 | Frame no.16 |
| 11 | 070-033 | Leaf spring no.33 |
| 12 | 101-017 | Felt no.17 |
| 13 | 061-063A | Tape chassis no.63A |
| 14 | 065-113 | Roller cover no.113 |
| 15 | 113-004 | Bearing no.4 |
| 16 | 063-028 | Plate no.28 |
| 18 | 070-018 | Spring no.18 |
| 19 | ... | Collar (plastic) 3 x 6mm |
| 20 | 120-001 | Sleeve nut no.1 3 x 10mm |
| 21 | Screw | 3 x 12mm Bs, Ni |
| 23 | Screw | 3 x 6mm w/washer (SEMS) |
| 24 | Screw | 3 x 15mm oval c.sunk |
| 25 | Screw | 3 x 6mm binding |
| 26 | Screw | 2.6 x 4mm truss |
| 28 | Washer | 3 x 8 x 0.3mm plain |
| 29 | Washer | 3mm dia. spring |
| 30 | Nut | 3mm dia. |
| 32 | Screw | 3 x 18mm binding |
| 34 | 101-026 | Felt no.26 |
| 36 | 107-003 | Cushion no.3 |
| 37 | Screw | 3 x 15mm black |

### Exploded Illustration



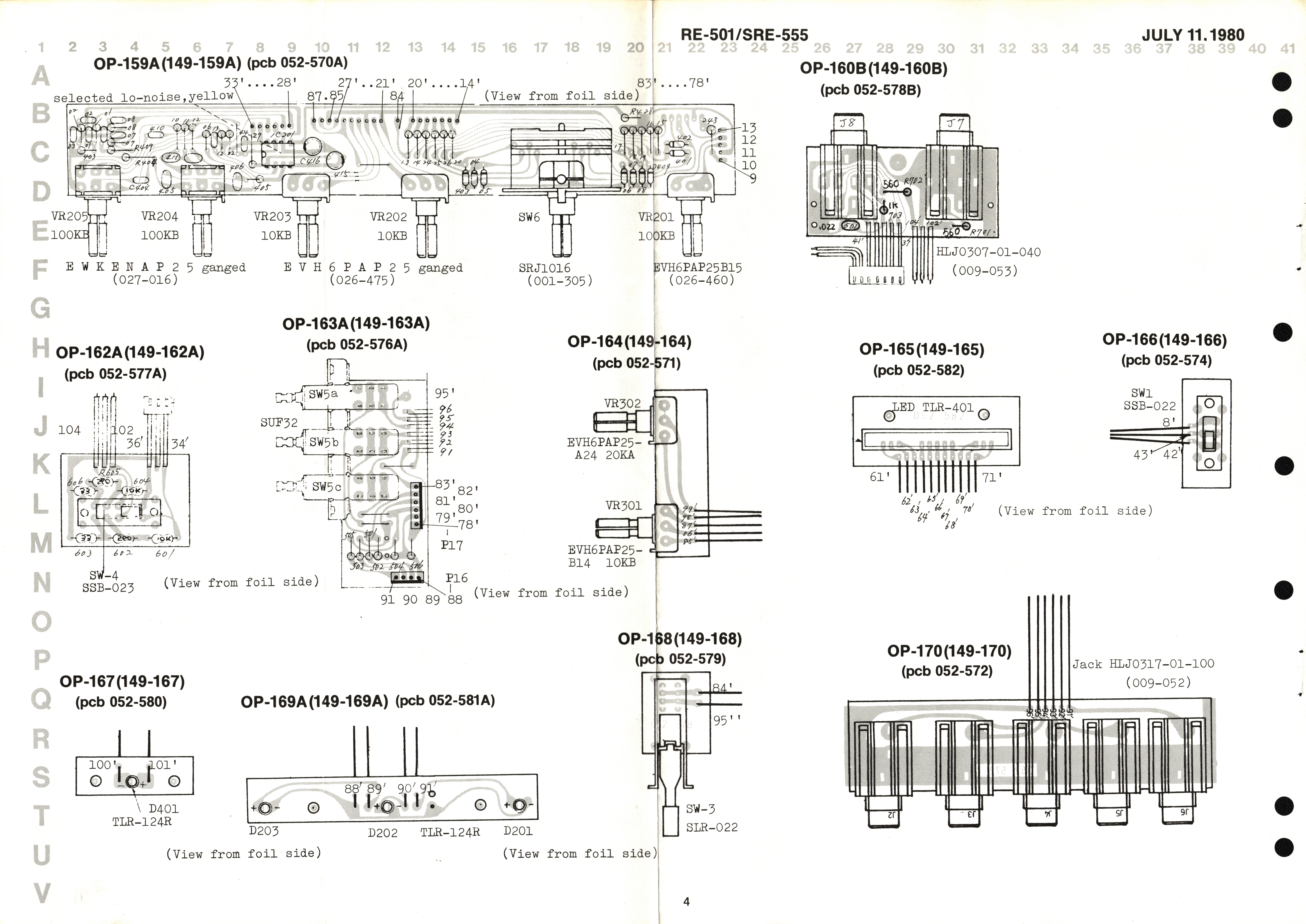
## BLOCK DIAGRAM

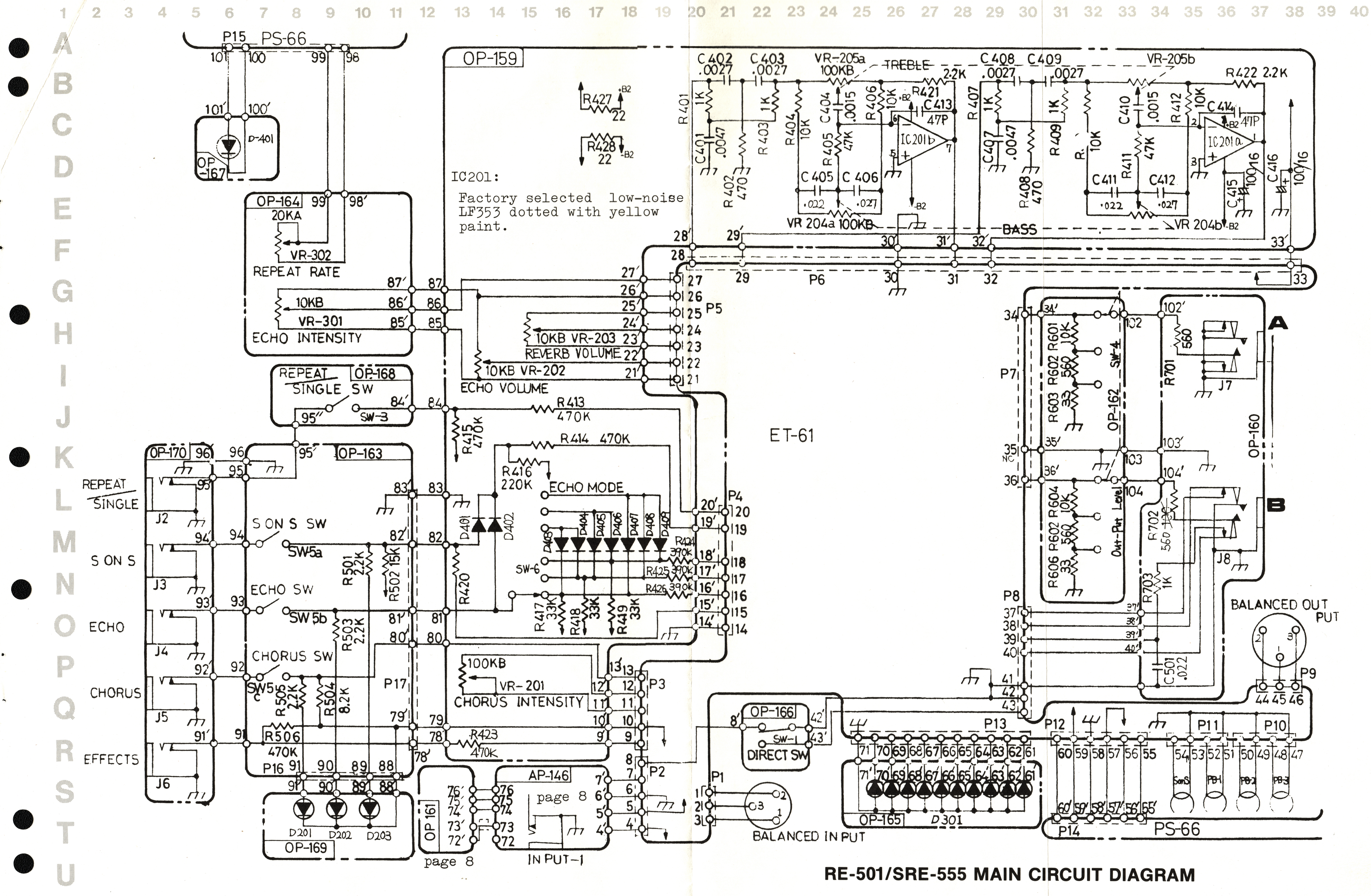



| SIGNAL \ OUTPUT | A&B: A | A&B: B | A ONLY | BAL-ANCED |
|---|---|---|---|---|
| DIRECT | O |  | O | O |
| ECHO |  | O | O | O |
| REVERB |  | O | O | O |
| CHORUS | O | O | O | O |
| SonS |  | O | O | O |

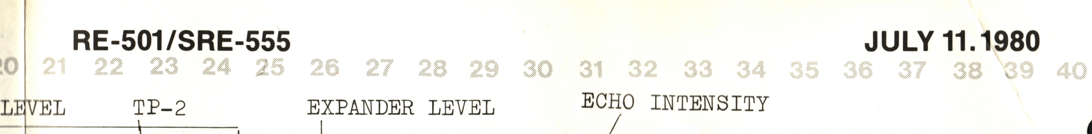
ECHO MODE O: effective

| HEAD \ MODE | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| 1 | O |  |  |  | O | O |
| 2 |  | O |  | O | O | O |
| 3 |  |  | O | O |  | O |


OP-159A(149-159A) (pcb 052-570A)
selected lo-noise,yellow
(View from foil side)
VR205 100KB
VR204 100KB
VR203 10KB
VR202 10KB
SW6
VR201 100KB
EWKENAP25 ganged (027-016)
EVH6PAP25 ganged (026-475)
SRJ1016 (001-305)
EVH6PAP25B15 (026-460)
OP-160B(149-160B) (pcb 052-578B)
HLJ0307-01-040 (009-053)
OP-162A(149-162A) (pcb 052-577A)
SW-4 SSB-023
(View from foil side)
OP-163A(149-163A) (pcb 052-576A)
SUF32
SW5a
SW5b
SW5c
P17
P16
(View from foil side)
OP-164(149-164) (pcb 052-571)
VR302
EVH6PAP25-A24 20KA
VR301
EVH6PAP25-B14 10KB
OP-165(149-165) (pcb 052-582)
LED TLR-401
(View from foil side)
OP-166(149-166) (pcb 052-574)
SW1 SSB-022
OP-167(149-167) (pcb 052-580)
D401 TLR-124R
(View from foil side)
OP-169A(149-169A) (pcb 052-581A)
D203
D202
TLR-124R
D201
(View from foil side)
OP-168(149-168) (pcb 052-579)
SW-3 SLR-022
OP-170(149-170) (pcb 052-572)
Jack HLJ0317-01-100 (009-052)
J2
J3
J4
J5
J6




RE-501/SRE-555 MAIN CIRCUIT DIAGRAM



## ET-61B (151-061B) (pcb 052-567B)

S/N up to
RE501: 951549
SRE555: 950599

Use ET-61C for replacement

COMMON MODE REJECTION

TP-1

COMPRESSOR LEVEL

TP-2

EXPANDER LEVEL

ECHO INTENSITY

RECORD EQUALIZATION

LED DISPLAY

BBD BIAS

BBD OUT BALANCE

PH3.LEVEL

PH1 LEVEL

PH2 LEVEL

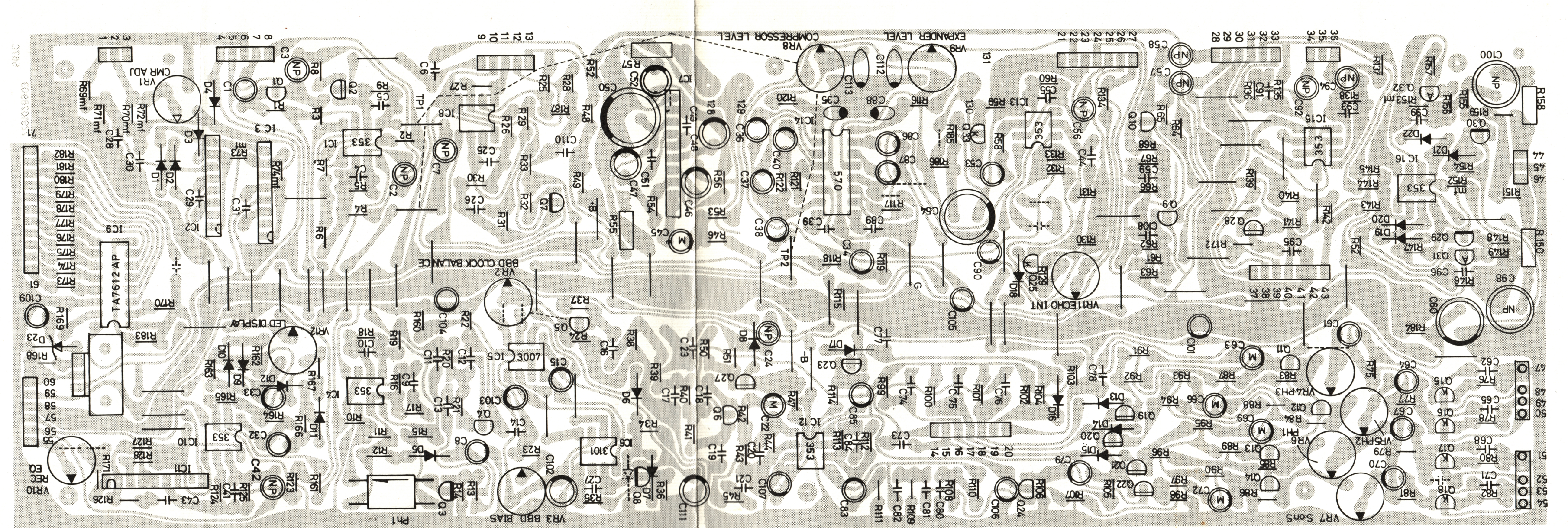
S on S LEVEL

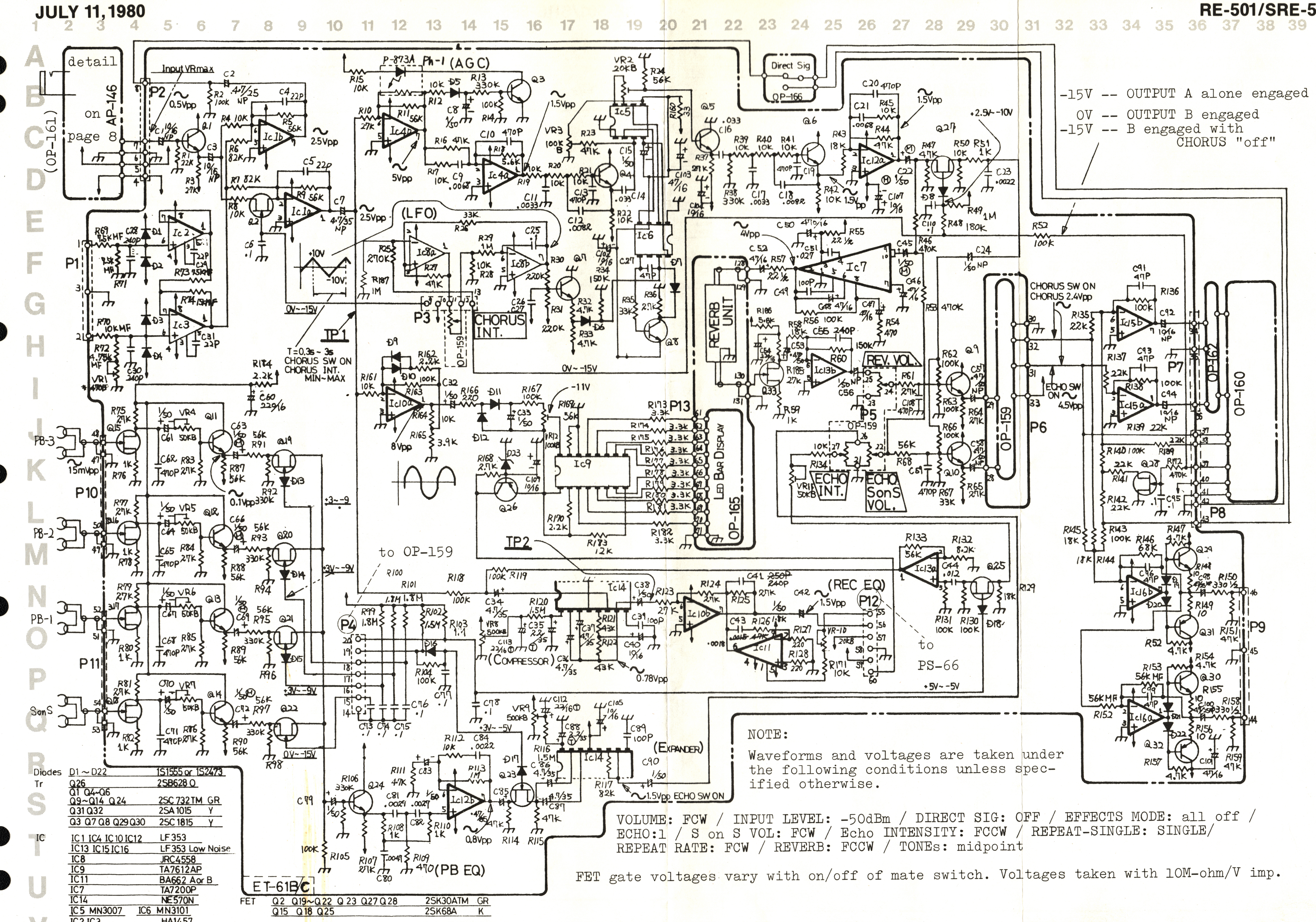
- 2SC732TM-GR
- 2SC1815-Y
- 2SK30ATM-GR
- 2SK68A-K
- 2SA1015-Y
- 1S1588

IC13,15,16 selected low noise, yellow dot

## ET-61C (151-061C) (pcb 052-267C)

Serial Number with:
RE501: 961550
SRE555: 960600




-15V -- OUTPUT A alone engaged
0V -- OUTPUT B engaged
-15V -- B engaged with CHORUS "off"
NOTE:
Waveforms and voltages are taken under the following conditions unless specified otherwise.
VOLUME: FCW / INPUT LEVEL: -50dBm / DIRECT SIG: OFF / EFFECTS MODE: all off / ECHO:1 / S on S VOL: FCW / Echo INTENSITY: FCCW / REPEAT-SINGLE: SINGLE/ REPEAT RATE: FCW / REVERB: FCCW / TONEs: midpoint
FET gate voltages vary with on/off of mate switch. Voltages taken with 10M-ohm/V imp.
Diodes D1~D22 1S1555 or 1S2473
Tr Q26 2SB628 Q
Q1 Q4~Q6 Q9~Q14 Q24 2SC732TM GR
Q31 Q32 2SA1015 Y
Q3 Q7 Q8 Q29 Q30 2SC1815 Y
IC IC1 IC4 IC10 IC12 LF353
IC13 IC15 IC16 LF353 Low Noise
IC8 JRC4558
IC9 TA7612AP
IC11 BA662 A or B
IC7 TA7200P
IC14 NE570N
IC5 MN3007 IC6 MN3101
IC2 IC3 HA1457
ET-61B/C
FET Q2 Q19~Q22 Q23 Q27 Q28 2SK30ATM GR
Q15 Q18 Q25 2SK68A K

## AP-146B (141-146B) (pcb 052-573B)

HLJ0317-01-100 (009-052)

EVH6PAP25B14 (026-457)

## OP-161B (149-161B) (pcb 052-575B)

(View from foil side)

R304 SW-2 SSB043 R303 R302 R301

HEAD PIN WIRING

EH RH

REC. BIAS ADJ.

## PS-66 (146-066) (pcb 052-569)

BIAS TRAP TP-3 MOTOR SPEED ADJ CHECK POINTS (collectors)

1KHz 8mVpp -50dBm

SW-2 In-put Level

J1 OP-161 AP-146 ET-61 P2

R301 56K R302 3.3K R303 3.3K R304 15K R305 1K R306 220K C306 33P C301 1/50 NP C302 10/16 NP R307 680 R308 47K C308 47P C303 22/16 C305 10/16 NP VR401 10KB R309 1K C307 22P C304 22/16 IC301

0.5Vpp

PH

Screw 2.6 x 10mm pan

Platform no.127 (064-127)

Spring no.5 (070-005)

FUSE RATING

| | 100/117V | 220/240V |
|---|---|---|
| F1 | SGA 1.0A (008-026) | CEE T400mA (008-062) |
| F2 | SGA 1.0A (008-026) | CEE T400mA (008-062) |
| F3 | SGA 2.0A (008-028) | CEE T1.6A (008-069) |

PLATE no.30 (063-030)

Holder no.284 (064-284)

Guide no.5 (067-005)

Guide (post) no.25 (067-025)

Spacer 3 x 6 x 20mm

Screw 3 x 25mm bind

Washer 3mm

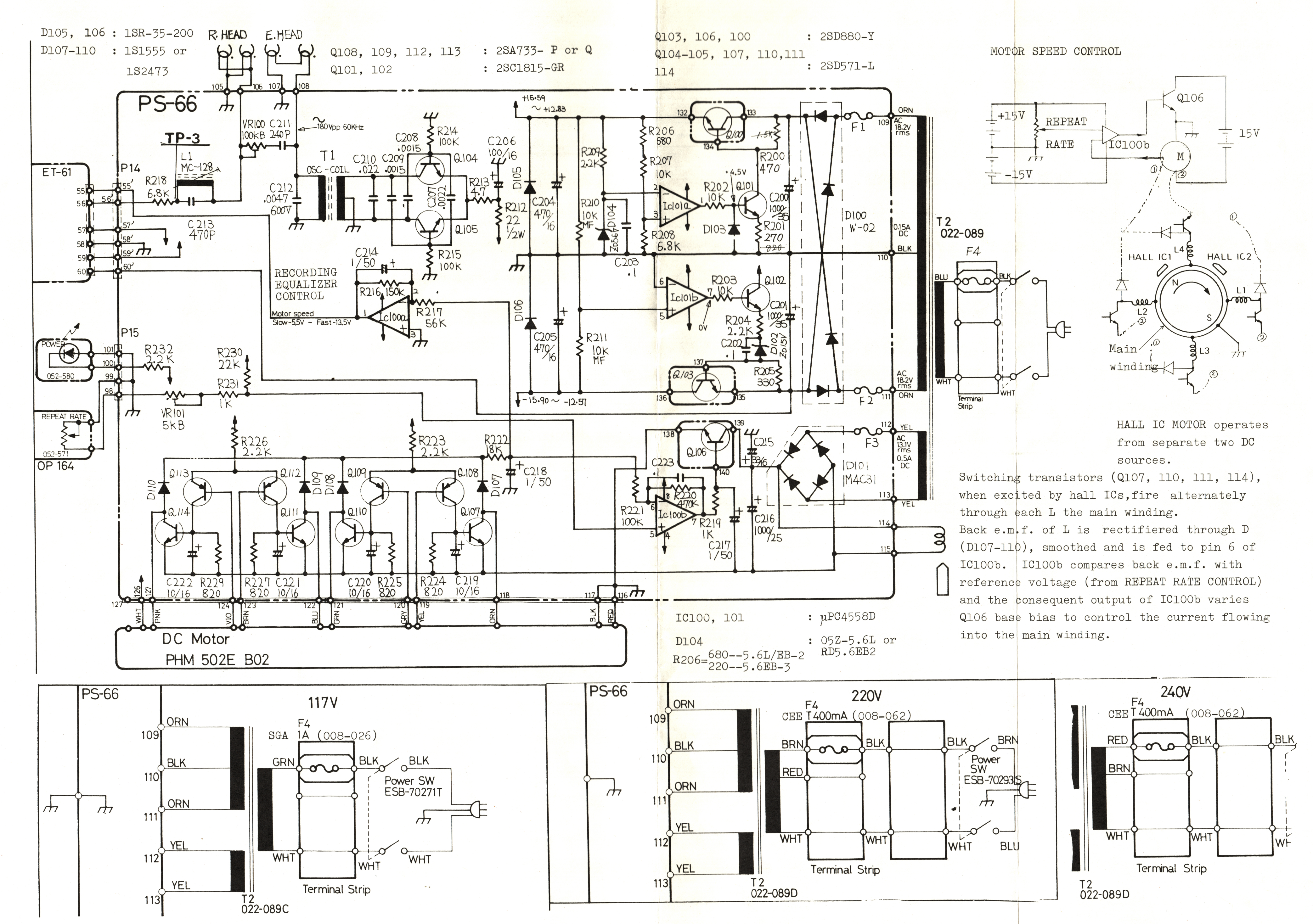
Guide no.5

Washer 3 x 10 x 0.8mm

Spacer 3x 6 x 6mm

Bearing 626Z

Holder no.284


D105, 106 : 1SR-35-200
D107-110 : 1S1555 or 1S2473
R.HEAD
E.HEAD
Q108, 109, 112, 113 : 2SA733- P or Q
Q101, 102 : 2SC1815-GR
Q103, 106, 100 : 2SD880-Y
Q104-105, 107, 110,111 114 : 2SD571-L
MOTOR SPEED CONTROL
PS-66
TP-3
ET-61
P14
P15
OP 164
RECORDING EQUALIZER CONTROL
Motor speed
Slow-5.5V ~ Fast-13.5V
T1 OSC-COIL
180Vpp 60KHz
T2 022-089
F4
Terminal Strip
+15V
REPEAT RATE
IC100b
Q106
15V
-15V
M
HALL IC1
HALL IC2
Main winding
DC Motor
PHM 502E B02
IC100, 101 : µPC4558D
D104 : 05Z-5.6L or RD5.6EB2
R206= 680--5.6L/EB-2
220--5.6EB-3
HALL IC MOTOR operates from separate two DC sources.
Switching transistors (Q107, 110, 111, 114), when excited by hall ICs,fire alternately through each L the main winding.
Back e.m.f. of L is rectifiered through D (D107-110), smoothed and is fed to pin 6 of IC100b. IC100b compares back e.m.f. with reference voltage (from REPEAT RATE CONTROL) and the consequent output of IC100b varies Q106 base bias to control the current flowing into the main winding.
PS-66
117V
SGA F4 1A (008-026)
Power SW ESB-70271T
Terminal Strip
T2 022-089C
PS-66
220V
F4 CEE T400mA (008-062)
Power SW ESB-70293
Terminal Strip
T2 022-089D
240V
F4 CEE T400mA (008-062)
Terminal Strip
T2 022-089D

## ADJUSTMENT AND CHECKING

### 1. MECHANICAL ADJUSTMENT

1-1. TAPE CHASSIS POSITION

Position tape chassis 1mm off motor shaft and secure it by tightening two screws at rear.

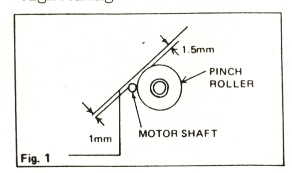


Fig. 1

1-2. TAPE CHASSIS HEIGHT

Position chassis 10.5±0.5mm above main chassis.

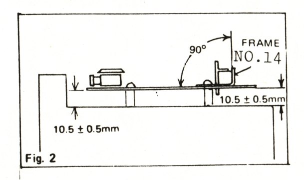


Fig. 2

1-3. LEAF SPRING PRESSURE

Position frame no.16 to have spring contact with bearing at 25-30g.

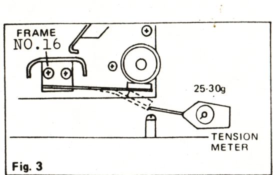


Fig. 3

1-4. FRAMES 13,14 & 15 POSITIONS

While engaging pinch roller with motor shaft, position and fix frames as indicated below.

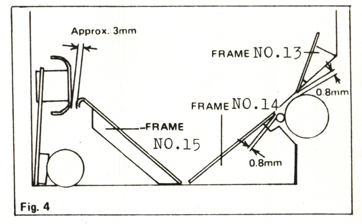


Fig. 4

1-5. PINCH ROLLER PRESSURE

Position solenoid for 1.1-1.25kg pinch roller pressure.

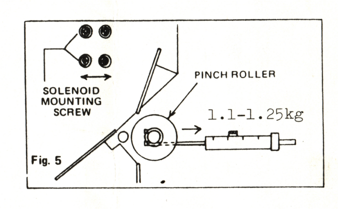


Fig. 5

1-6. HEADS ALIGNMENT

Position each head gap perpendicular to and center on the passing tape by turning alignment screws.

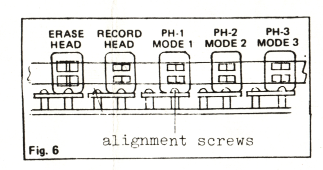
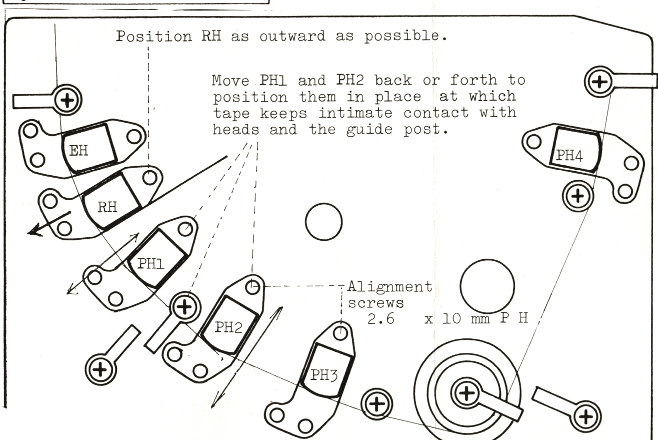


Fig. 6

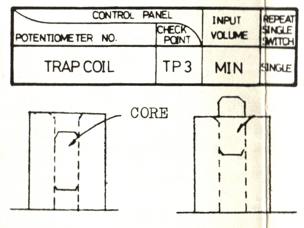



### 2. ELECTRICAL ADJUSTMENT

2-1. BIAS LEAKAGE TRAP

- PS-66 -

| POTENTIOMETER NO. | CHECK POINT | INPUT VOLUME | REPEAT SINGLE SWITCH |
|---|---|---|---|
| TRAP COIL | TP3 | MIN | SINGLE |




Set VR100 at its midpoint. Connect VTVM or scope to TP-3.

a) Turn L1 core, with appropriate tool, for minimum reading (should not be more than 1V rms).

Continuous turning will dip the meter reading twice -- at fundamental and at 2nd harmonic. Tune L1 to fundamental.

2-2. MOTOR SPEED

- PS-66 -

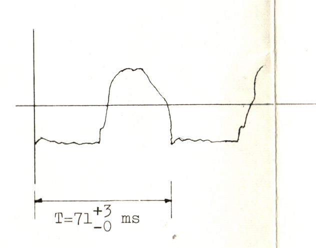
| POTENTIOMETER NO. | CHECK POINT | REPEAT RATE |
|---|---|---|
| VR101 | Q107 Q110 Q111 Q114 COLLECTOR | MIN |

Scope (DC couple, negative slope, normal) : one of the check points.

a) Set VR101 for the T shown in the figure below.

Time base should be triggered at the lowest negative peaks.

T should not be longer than 23ms with REPEAT RATE set at FCW position when the machine is operating on the rated line voltage.




2-3. LED BAR DISPALY

- ET-61 -

| POTENTIOMETER NO. | CHECK POINT | INPUT VOLUME | INPUT LEVEL SWITCH |
|---|---|---|---|
| VR12 | LED BAR DISPLAY | MAX | OdB |

Input signal: 1kHz, sine wave, +2dBm, into INPUT-2 jack.

a) Turn VR12 FCW; then reverse it slowly until BAR displays +2dB.

b) Make sure that LEDs read -12dB under the following settings:

| | INPUT SIGNAL | INPUT LEVEL SWITCH |
|---|---|---|
| INPUT-1 | -8dBm | |
| INPUT-2 | -12dBm | OdB |
| | -37dBm | -25dB |
| | -62dBm | -50dBm |

2-4. COMMON MODE REJECTION

| POTENTIOMETER NO. | CHECK POINT | INPUT VOLUME | INPUT LEVEL SWITCH | DIRECT SIGNAL SWITCH |
|---|---|---|---|---|
| VR 1 | OUT PUT A | MIN | — | ON |

| EFFECT MODE SWITCH CHORUS | EFFECT MODE SWITCH ECHO | EFFECT MODE SWITCH SonS | ECHO SonS VOLUME | REVERB VOLUME | TONE BASS | TONE TREBLE | OUTPUT LEVEL SWITCH |
|---|---|---|---|---|---|---|---|
| OFF | OFF | OFF | MIN | MIN | MIN | MIN | 0dBm |

Input signal: 1kHz, sine wave, +4dBm into INPUT-1 jack with its pins 2 and 3 joined.
Oscilloscope: OUTPUT-A.

a) Adjust VR1 for minimum 1kHz signal output.

2-5. COMPRESSOR LEVEL

| POTENTIOMETER NO. | CHECK POINT | INPUT VOLUME | INPUT LEVEL SWITCH | REPEAT SINGLE SWITCH |
|---|---|---|---|---|
| VR8 | TP 1 TP 2 | MAX | OdB | SINGLE |

Input signal: 1kHz, sine wave, INPUT-2.

a) Set audio generator for -40±0.1dBm reading on millivoltmeter at TP-1.

b) Adjust VR8 for -34.5dBm reading at TP-2.

Distributed meter lead capacitance should be less than 100pF.

2-6. HEAD ALIGNMENT

The following adjustments must be done only after completion of MECHANICAL ADJUSTMENTS.

| POTENTIOMETER NO. | CHECK POINT | INPUT VOLUME | INPUT LEVEL SWITCH | DIRECT SIGNAL SWITCH | EFFECT MODE SWITCH CHORUS | EFFECT MODE SWITCH ECHO | EFFECT MODE SWITCH SonS |
|---|---|---|---|---|---|---|---|
| ——— | OUT PUT A | MAX | — | OFF | OFF | ON<br>OFF | OFF<br>ON |

| ECHO SonS VOLUME | ECHO SonS INTENSITY | REPEAT RATE | REVERB VOLUME | TONE BASS | TONE TREBLE | OUTPUT LEVEL SWITCH | REPEAT SINGLE SWITCH |
|---|---|---|---|---|---|---|---|
| MAX | — | CENTER | MIN | CENTER | CENTER | — | SINGLE |

2-6-1. Fine Alignment

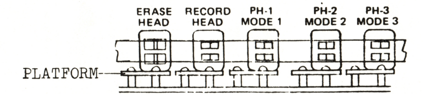
Take visual head examination for misalignment referring to the figures below. Readjust as necessary.

(a) TANGENCY



The faces of the head cores must be simultaneously tangent to the same degree with the tape.

(b) HEIGHT

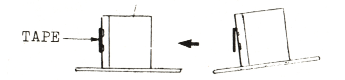



Every gap-width dimension is centered on the same track location.

(c) AZIMUTH

Width dimension of the head gap is a precise 90-degree angle to the tape edge.

(d) TILT



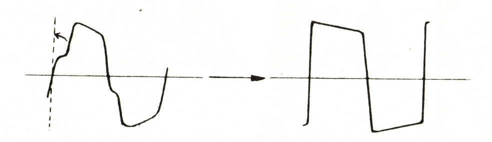

The tape must contact with head surface precisely in parallel.

2-6-2. Playback heads

Input signal: 1kHz, square, for 0dB LED display.
Panel controls setting: as shown at the left.

a) With ECHO MODE selected to corresponding head, adjust playback head for the following:

(1) Waveform slope is straightened.
(2) Leading edge is as perpendicular to base line as possible or has shortest rise time.



b) Readjusting TANGENCY described in(a) of 2-6-1 at this step may prove effective to obtain waveform stability.

Output level differences among playback heads are to be compensated for in later section.

## 2-7. EXPANDER

| CONTROL PANEL POTENTIOMETER NO. | CHECK POINT | INPUT VOLUME | INPUT LEVEL SWITCH | DIRECT SIGNAL SWITCH | EFFECT MODE SWITCH CHORUS | EFFECT MODE SWITCH ECHO | EFFECT MODE SWITCH SonS |
|---|---|---|---|---|---|---|---|
| VR6 VR9 VR100 | OUT PUT A | MAX | — | OFF | OFF | ON | OFF |

| ECHO SonS VOLUME | ECHO SonS INTENSITY | REPEAT RATE | REVERB VOLUME | TONE BASS | TONE TREBLE | OUTPUT LEVEL SWITCH | REPEAT SINGLE SWITCH |
|---|---|---|---|---|---|---|---|
| MAX | — | — | MIN | CENTER | CENTER | 0dBm | SINGLE |

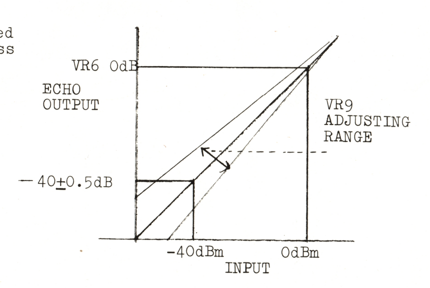
Input signal:1kHz,sine wave for 0dB reading on LED bar.
ECHO MODE: 1

a) Set VR100 on PS-66 for maximum meter reading at OUTPUT A.
b) Set VR6 for 0dBm±3dBm reading on the meter.
c) Decrease audio generator output by 40dBm.

d) Adjust VR9 so that the meter reads 40±0.5dB lower than that at step b.

As can be seen from the figure below, VR9,when turned, will deviate input-output curve at point which preadjusted by VR6.
d) Repeat steps b-d for specified results.

This input-output curve has pronounced effect on smoothness of level decrease ratio of multiple echo sounds and residual noise. The curve should be as linear as possible.



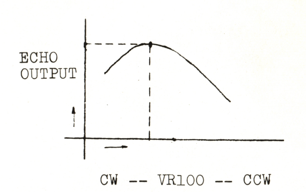

## 2-8. RECORDING BIAS

| CONTROL PANEL POTENTIOMETER NO. | CHECK POINT | INPUT VOLUME | INPUT LEVEL SWITCH | DIRECT SIGNAL SWITCH | EFFECT MODE SWITCH CHORUS | EFFECT MODE SWITCH ECHO | EFFECT MODE SWITCH SonS |
|---|---|---|---|---|---|---|---|
| VR 100 | OUT PUT A | MAX | 0dB | OFF | OFF | ON | OFF |

| ECHO SonS VOLUME | ECHO SonS INTENSITY | REPEAT RATE | REVERB VOLUME | TONE BASS | TONE TREBLE | OUTPUT LEVEL SWITCH | REPEAT SINGLE SWITCH |
|---|---|---|---|---|---|---|---|
| MAX | — | CENTER | MIN | CENTER | CENTER | — | SINGLE |

Input signal: 1kHz, sine wave, 0dBm to INPUT-2.

a) Turn VR100 FCW. Reversing it gradually, find the point which furnishes the highest output.
b) Set VR100 for ±1dB of the peak value.




## 2-9. PLAYBACK EQUALIZER

| CONTROL PANEL POTENTIOMETER NO. | CHECK POINT | INPUT VOLUME | INPUT LEVEL SWITCH | DIRECT SIGNAL SWITCH |
|---|---|---|---|---|
| VR6 VR 10 | OUT PUT A | MAX | 0dB | OFF |

| EFFECT MODE SWITCH CHORUS | EFFECT MODE SWITCH ECHO | EFFECT MODE SWITCH SonS | ECHO SonS VOLUME | ECHO SonS INTENSITY |
|---|---|---|---|---|
| OFF | ON | OFF | MAX | — |

| REPEAT RATE | REVERB VOLUME | TONE BASS | TONE TREBLE | OUTPUT LEVEL SWITCH | REPEAT SINGLE SWITCH |
|---|---|---|---|---|---|
| CENTER | MIN | CENTER | CENTER | 0dBm | SINGLE |

Input signal: 1kHz, sine wave, 0dBm to INPUT-2 jack.

ECHO MODE: 1

a) Adjust VR6 for 0dBm reading at OUTPUT A.
b) Reset audio generator for 10kHz, 0dBm.
c) Set VR10 for -15dBm $^{+1.5dBm}_{-3dBm}$ reading at OUTPUT A.

If VR10 fails to produce this output, readjust VR100 together with VR10 at 10kHz.

## 2-10. PLAYBACK HEAD SENSITIVITY

| CONTROL PANEL POTENTIOMETER NO. | CHECK POINT | INPUT VOLUME | INPUT LEVEL SWITCH | DIRECT SIGNAL SWITCH | EFFECT MODE SWITCH CHORUS | EFFECT MODE SWITCH ECHO | EFFECT MODE SWITCH SonS |
|---|---|---|---|---|---|---|---|
| VR4 VR5 VR6 VR7 | OUT PUT A | MAX | 0dB | OFF | OFF | ON / OFF | OFF / ON |

| ECHO SonS VOLUME | ECHO SonS INTENSITY | REPEAT RATE | REVERB VOLUME | TONE BASS | TONE TREBLE | OUTPUT LEVEL SWITCH | REPEAT SINGLE SWITCH |
|---|---|---|---|---|---|---|---|
| MAX | — | MAX | MIN | CENTER | CENTER | 0dBm | SINGLE |

Input signal: 1kHz, sine wave, 0dBm into INPUT 2 jack.

To obtain equal echo outputs in sound level,
a) adjust each trimmer potentiometer for

0dBm$^{+0.5dB}_{-0dB}$ reading at OUTPUT A jack.

| ECHO MODE | TRIMMERPOT |
|---|---|
| 1 | VR4 |
| 2 | VR5 |
| 3 | VR6 |
| S on S | VR7 |

## 2-11. ECHO INTENSITY

| CONTROL PANEL POTENTIOMETER NO. | CHECK POINT | INPUT VOLUME | INPUT LEVEL SWITCH | DIRECT SIGNAL SWITCH | EFFECT MODE SWITCH CHORUS | EFFECT MODE SWITCH ECHO | EFFECT MODE SWITCH SonS |
|---|---|---|---|---|---|---|---|
| VR 11 | OUT PUT A | MAX | 0dB | OFF | OFF | ON | OFF |

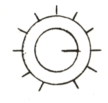
| ECHO SonS VOLUME | ECHO SonS INTENSITY | REPEAT RATE | REVERB VOLUME | TONE BASS | TONE TREBLE | OUTPUT LEVEL SWITCH | REPEAT SINGLE SWITCH |
|---|---|---|---|---|---|---|---|
| MAX | | MAX | MIN | — | — | — | REPEAT |

Input signal: 1kHz, sine wave, 0dBm into INPUT 2 jack.

a) Rotate ECHO/S on S knob to 10th point from FCCW.

b) Feed the signal for a short period (0.5-2s).
Adjust VR11 for finfinite echo repetition or oscillation.

c) Reverse the knob to 9th point.
Echo sound should die away gradually.



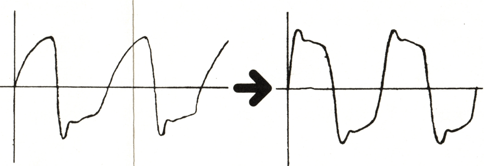
## 2-12. BBD BIAS (CHORUS)

| CONTROL PANEL POTENTIOMETER NO. | CHECK POINT | INPUT VOLUME | INPUT LEVEL SWITCH | DIRECT SIGNAL SWITCH | CHORUS INTENSITY |
|---|---|---|---|---|---|
| VR 2 VR 3 | OUT PUT A | MAX | -25bBm | OFF | MIN |

| EFFECT MODE SWITCH CHORUS | EFFECT MODE SWITCH ECHO | EFFECT MODE SWITCH SonS | REVERB VOLUME | TONE BASS | TONE TREBLE | OUTPUT LEVEL SWITCH | REPEAT SINGLE SWITCH |
|---|---|---|---|---|---|---|---|
| ON | OFF | OFF | MIN | CENTER | CENTER | — | — |

Input signal: 1kHz, rectangular, 0.3Vp-p into INPUT 2 jack.

a) Rotate VR2 to its midpoint.
b) Set VR3 for chorus output waveform symmetrical to the base line of scope.

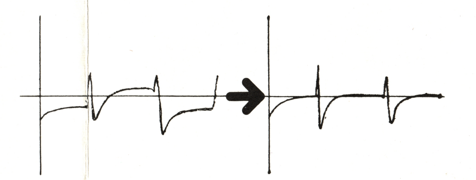


## 2-13. CLOCK COMPONENT REDUCTION

| CONTROL PANEL POTENTIOMETER NO. | CHECK POINT | INPUT VOLUME | INPUT LEVEL SWITCH | DIRECT SIGNAL SWITCH | CHORUS INTENSITY | EFFECT CHORUS |
|---|---|---|---|---|---|---|
| VR 2 VR 3 | Q5 BASE | MIN | — | — | — | OFF |

Scope's distributed lead capacitance should not be more than 47pF.

a) Adjust VR2 for minimum discrepancy in amplitude between clock pulses on the base line.
b) Adjustments 2-12 and 2-13 are interrelated.
Repeat both adjustments for the best result.



# PARTS LIST

## CABINET. PANEL

**RE501**

081-135 Cabinet no.135
086-019 Cabinet (upper) no.19
108-004 Handle H-15
111-030 Rubber foot G-9
111-021 Rubber foot G-5
115-002 Hinge no.2
072-299 Panel (front) no.299
065-289 Panel cover no.289
grey, back of front panel
073-024 Spacer no.24
chassis-cabinet, side

**SRE555**

072-311 Panel (front) no.311
065-292 Cover (top panel) no.292
065-294 Cover (left hand) no.294
065-293 Cover (right hand)no.293
065-291 Cover (bottom) no.291
065-296 Cover no.296
back of front panel
108-022 Handle no.22
067-034 Guide no.34 right hand
067-033 Guide no.33 left hand
067-035 Guide no.35 rail L.hand
067-036 Guide no.36 rail R.hand
066-054 Case no.54 outer
064-289 Holder no.289
070-062 Leaf spring no.62
12170703 Roller no.12170703
111-023 Rubber foot G-7
123-016 Decoration screw no.16
*ref.p-2 for detail

## SWITCH. KNOB

Switch

13129113 ESB70226 power 100V
13129114 ESB70271T power 117V
13129115 ESB70293S power 220/240V
001-305 SRJ-1016 rotary
001-266 SLR-02239 lever
001-304 SSB-04303 slide INPUT
001-205 SSB-02303 slide OUTPUT
001-182 SSB-02242 slide DIRECT
001-306 SUF-32A19 push

Knob

016-103 No.103 rotary switch
016-078 No.78 pots.
016-085 Button no.85 white
016-009 Button no.9 blk(SRE555)

## SEMICONDUCTOR

Transistor

017-139 2SD880-Y
017-077 2SB628-R
017-258 2SD571-L
017-103 2SC732TM-GR
017-024 2SA733- P or Q
017-106 2SC1815- GR or Y
017-116 2SA1015-Y
017-081 2SK68A-K FET
017-014 2SK30ATM-GR FET

Diode

018-014 1S2473
018-082 W-02
018-093 M4C31
018-101 1SR-35-200
15019654 RD16EB-2 zener
15019525 RD5.6B-2 zener
or 05Z5.6L
(RD5.6B-3 can be a replacement with the resistor value changed, see PS-66 circuit diagram.)

019-028 TLR-124 red LED
019-033 TLR-401 10-segment LED BAR
019-011 P873A red or white photocoupler

IC

020-028 TA-7200P
020-208 LF353N
020-071 JRC- or μPC- 4558D
020-160 BA-662- A or B
020-213 MN3007 BBD
020-224 MN3101 BBD driver
020-226 TA7612AP LED BAR driver
020-098 NE570N compander
020-080 HA1457 pre amp

020-208S LF353N selected,yellow

## POTENTIOMETER

026-457 EVH6PAP25B14
026-460 EVH6PAP25B15
027-016 EWKENAP25B15 dual, ganged
026-447 EVH6PAP25A24

028-003 EVTR4AA 5K trimmer
028-004 EVTR4AA 10K trimmer
028-005 EVTR4AA 20K trimmer
028-006 EVTR4AA 50K trimmer
028-007 EVTR4AA 100K trimmer
13299547 CR19R 220 trimmer
030-487 CR19R 470 trimmer

## SOCKET. CONNECTOR

009-052 HLJ1317-01-100
or HLJ0317-01-100
009-053 HLJ1317-01-040
or HLJ0317-01-040
*Type 1317 countersunk opening, used on later products.
010-263 NC-3FP or HA16PR-3S
female
010-264 NC-3MP or HA16R3P
male

## PRINTED CIRCUIT BOARD

141-146B AP-146B (pcb 052-573B)
146-066 PS-66 (pcb 052-569)
149-159A OP-159A (pcb 052-570A)
149-160B OP-160B (pcb 052-578B)
149-161B OP-161B (pcb 052-575B)
149-162A OP-162A (pcb 052-577A)
149-163A OP-163A (pcb 052-576A)
149-164 OP-164 (pcb 052-571)
149-165 OP-165 (pcb 052-582)
149-166 OP-166 (pcb 052-574)
149-167 OP-167 (pcb 052-580)
149-168 OP-168 (pcb 052-579)
149-169A OP-169A (pcb 052-581A)
149-170 OP-170 (pcb 052-572)
151-061C ET-61C (pcb 052-567C)
* direct replacement for ET-61 A/B

## TRANSFORMER. COIL

022-095 Osc coil MC126-2141
022-045 Trap coil MC-128
022-089N Transformer PT89N 100V
022-089C PT89C 117V
022-089D PT89D 220/240V

## FUSE. FUSE HOLDER

008-026 SGA 1.0A F1,2,4 100/117V
008-028 SGA 2.0A F3 100/117V
008-062 CEE T400mA F1,2,4 220/240V
008-069 CEE T1.6A F3 220/240V

012-003 Clip TF-758 sec.
012-018 Clip X-N1153 prim.

SOME PARTS DESIGNATED IN NEW NUMBERINGS

## HEAD. DRIVINGS

049-003 Record head R-280MR
049-004 Playback head R-280MP
049-001 Erase head AE-28
065-118 Shield no.118 R.Head
064-127 Platform no.127
070-005 Spring no.5 alignment
063-030 Plate no.30 platform mount
065-286 Cover no.286 above heads
067-005 Tape guide no.5 (post)
067-025 Guide no.25 L shape
112-001 Pinch roller no.1
068-006 Cover no.6 pinch roller
101-001 Shaft no.1 pinch roller
064-284 Holder no.284
(guide bearing base)
113-004 Bearing 626ZZC2
(guide bearing)
*See page 8 for detail.

050-006 Motor PHM-502E-B02
065-106 Cover no.106 motor
120-037 Nut no.37 motor mount

*PARTS ON TAPE CHASSIS PAGE 3

Arm. Solenoid

171-001 Arm unit assy AU-1
069-009 Shaft no.9 AU-1 mount
050-004 DC solenoid MD1811R
070-032A Spring no.32A
070-007 Spring no.7
070-022 Spring no.22
123-006 Screw no.6 plunger adjust
* detail ref. pp.2-3.

040-001 Reverb unit Z-3F

064-040 Bracket no.40 PS-66 mount
064-283 Bracket no.283 PS-66 mount

064-033 PCB holder LCB-4N
(rocker rivet)

## CHASSIS

061-302-1 No.302-1 main
061-302-2 No.302-2 front
061-303 No.303 pot(tone) shield
061-304 No.304 head amp shield